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Joint Polar Satellite System (JPSS) Algorithm Specification for the Common Algorithm Software Requirements Specification (SRS)

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National Aeronautics and
Space Administration

Goddard Space Flight Center
Greenbelt, Maryland

Joint Polar Satellite System (JPSS) Algorithm Specification for the Common Algorithm Software Requirements Specification (SRS)
JPSS Review/Approval Page

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Preface

This document is under JPSS Ground Project configuration control. Once this document is approved, JPSS approved changes are handled in accordance with Class I and Class II change control requirements as described in the JPSS Configuration Management Procedures, and changes to this document shall be made by complete revision.

Any questions should be addressed to:

JPSS Configuration Management Office
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Change History Log

Revision	Effective Date	Description of Changes (Reference the CCR & CCB/ERB Approve Date)
Rev-	Aug. 29, 2013	This version incorporates 474-CCR-13-1217 which was approved by JPSS Ground ERB on the effective date shown.
A	Feb 12, 2014	This version incorporates 474-CCR-13-1453 which was approved by JPSS Ground ERB on the effective date shown.
A1	Oct 23, 2014	This version incorporates 474-CCR-14-2091 which was approved by the JPSS Ground ERB for CO10 on the effective date shown.
B	Nov 13, 2014	This version incorporates 474-CCR-14-1721 and 474-CCR-14-1741, 474-CCR-14-1901, 474-CCR-14-1781, 474-CCR-14-2101 and 474-CCR-14-2110 which was approved by JPSS Ground ERB on the effective date shown.
C	Oct 14, 2015	This version incorporates 474-CCR-15-2452 and 474-CCR-15-2480, and 474-CCR-15-2657 which was approved by JPSS Ground ERB on the effective date shown.
0200D	Sep 22, 2016	This version incorporates 474-CCR-16-2939 and 474-CCR-16-3049 which was approved by JPSS Ground ERB on the effective date shown.

Table of TBDs/TBRs

TBx	Type	ID	Text	Action
None				

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1 Introduction

The Joint Polar Satellite System (JPSS) is the National Oceanic and Atmospheric Administration's (NOAA) next-generation operational Earth observation program that acquires and distributes global environmental data primarily from multiple polar-orbiting satellites. The program plays a critical role in NOAA's mission to understand and predict changes in weather, climate, oceans and coasts, and the space environment, which support the Nation's economy and protect lives and property. The first JPSS satellite mission, the Suomi National Polar-orbiting Partnership (S-NPP) satellite, successfully launched in October 2011. S-NPP, along with the legacy NOAA Polar Operational Environmental Satellites (POES), provides continuous environmental observations. Two JPSS satellites will follow S-NPP: JPSS-1, planned for launch in fiscal year (FY) 2017, with JPSS-2 to follow in FY2021. In the future, the JPSS Polar Follow-On (PFO) provides for two additional missions, JPSS-3 and JPSS-4, as follow-on to the JPSS-2 mission to extend the JPSS Program lifecycle out to 2038.

In addition to the JPSS Program's own satellites operating in the 1330 (±10) Local Time of the Ascending Node (LTAN) orbit, NOAA also leverages mission partner assets for complete global coverage. These partner assets include the Department of Defense (DoD) Defense Meteorological Satellite Program (DMSP) operational weather satellites (in the 1730 - 1930 LTAN orbit), the European Organisation for the Exploitation of Meteorological Satellites (EUMETSAT) Meteorological Operational (Metop) satellites (in the 2130 LTAN orbit) and the Japanese Aerospace Exploration Agency (JAXA) Global Change Observation Mission-Water (GCOM-W) satellite (in the 1330 LTAN orbit). JPSS routes Metop data from McMurdo Station, Antarctica to the EUMETSAT facility in Darmstadt, Germany and EUMETSAT, in turn, provides Metop data to NOAA. For GCOM, JPSS routes the GCOM-W data from Svalbard, Norway to the NOAA Satellite Operations Facility (NSOF) in Suitland, MD, processes GCOM-W data and delivers GCOM-W products to the JPSS users who have JAXA permissions.

Additionally, the JPSS Program provides data acquisition and routing support to the DMSP and the WindSat Coriolis Program. JPSS routes DMSP data from McMurdo Station to the 557th Weather Wing at Offutt Air Force Base in Omaha, NE. After processing, the 557th releases the DMSP data for public consumption over the Internet via the National Geophysical Data Center in Boulder, CO. The JPSS Program provides data routing support to the National Science Foundation (NSF), as well as the National Aeronautics and Space Administration (NASA) Space Communications and Navigation (SCaN)-supported missions, which include the Earth Observing System (EOS). As part of the agreements for the use of McMurdo Station, JPSS provides communications/network services for the NSF between McMurdo Station, Antarctica and Centennial, Colorado.

As a multi-mission ground infrastructure, the JPSS Ground System supports the heterogeneous constellation of the before-mentioned polar-orbiting satellites both within and outside the JPSS Program through a comprehensive set of services as listed in Table 1-1.

Table: 1-1 JPSS Ground System Services

Service	Description
Enterprise Management and Ground Operations	Provides mission management, mission operations, ground operations, contingency management and system sustainment
Flight Operations	Provides launch support and early orbit operations, telemetry and commanding, orbital operations, mission data playback, payload support, flight software upgrade, flight vehicle simulation, and disposal at the end of mission life
Data Acquisition	Provides space/ground communications for acquiring mission data
Data Routing	Provides routing of telemetry, mission and/or operations data through JPSS' global data network
Data Product Generation	Provides the processing of mission data to generate and distribute raw, sensor, environmental, and ancillary data products
Data Product Calibration and Validation	Provides calibration and validation of the data products
Field Terminal Support	Provides development and operational support to the Field Terminal customers

1.1 Identification

This SRS provides requirements for the common algorithms that generally apply to many products.

1.2 Algorithm Overview

This document provides common algorithm requirements that broadly apply to the generation of many products. It provides high level algorithm functionalities related to product performance, algorithm provision, metadata format, and data quality notification generation. It also serves as algorithm guidance for delivered science codes that comply with requirements flown down from parent documents and adhere to the functionalities of JPSS data processing system.

1.3 Document Overview

Section	Description
Section 1	Introduction - Provides a brief overview of the JPSS Ground System and the relevant algorithm, as reference material only.
Section 2	Related Documentation - Lists related documents and identifies them as Parent, Applicable, or Information Documents such as, MOAs, MOUs, technical implementation agreements, as well as Data Format specifications. This section also establishes an order of precedence in the event of conflict between two or more documents.
Section 3	Algorithm Requirements - Provides a summary of the science requirements for the products covered by this volume.
Appendix A	Requirements Attributes - Provides the mapping of requirements to verification methodology and attributes.

2 Related Documentation

The latest JPSS documents can be obtained from URL: https://jpssmis.gsfc.nasa.gov/frontmenu_dsp.cfm. JPSS Project documents have a document number starting with 470, 472 or 474 indicating the governing Configuration Control Board (CCB) (Program, Flight, or Ground) that has the control authority of the document.

2.1 Parent Documents

The following reference document(s) is (are) the Parent Document(s) from which this document has been derived. Any modification to a Parent Document will be reviewed to identify the impact upon this document. In the event of a conflict between a Parent Document and the content of this document, the JPSS Program Configuration Change Board has the final authority for conflict resolution.

Doc. No.	Document Title
470-00067	Joint Polar Satellite System (JPSS) Ground System Requirements Document (GSRD)
470-00067-02	Joint Polar Satellite System (JPSS) Ground System Requirements Document (GSRD), Volume 2 - Science Product Specification

2.2 Applicable Documents

The following document(s) is (are) the Applicable Document(s) from which this document has been derived. Any modification to an Applicable Document will be reviewed to identify the impact upon this document. In the event of conflict between an Applicable Document and the content of this document, the JPSS Program Configuration Change Board has the final authority for conflict resolution.

Doc. No.	Document Title
474-00448-02-01	Joint Polar Satellite System (JPSS) Algorithm Specification Volume II: Data Dictionary for the Common Algorithms
472-00121	JPSS-1 ATMS Performance Requirement Document
472-00122	JPSS-1 CrIS Performance Requirement Document
472-00123	JPSS-1 OMPS Performance Requirements Document (PRD)
472-00124	JPSS-1 VIIRS Performance Requirements Document
472-REF-00115	Performance Specification For Clouds & the Earth's Radiant Energy System (CERES)
NIMA TR-8350.2	Defense World Geodetic System 1984 Technical Report
FGDC-STD-001-1998	The Content Standard for Digital Geospatial Metadata (CSDGM), Version 2

2.3 Information Documents

The following documents are referenced herein and amplify or clarify the information presented in this document. These documents are not binding on the content of this document.

Doc. No.	Document Title
474-00333	Joint Polar Satellite System (JPSS) Ground System (GS) Architecture Description Document (ADD)

Doc. No.	Document Title
474-00054	Joint Polar Satellite System (JPSS) Ground System (GS) Concept of Operations (ConOps)
470-00041	Joint Polar Satellite System (JPSS) Program Lexicon
429-05-02-42	Joint Polar Satellite System (JPSS) Mission Data Format Control Book for NPP
472-00251	Joint Polar Satellite System (JPSS) Mission Data Format Control Book for JPSS-1

2.4 Data Format Specifications

Not applicable.

3 Algorithm Requirements

SRS.01.01_144 The JPSS Ground System [data product] algorithms shall produce retrieved values for SDRs, TDRs, and EDRs outside of the boundaries of the specified range of any performance attribute to the extent necessary for validating retrieved values occurring at the boundaries of the specified range.

Rationale: For any specified range of SDR, TDR, or EDR performance the supporting algorithm must have the capability to provide actual retrieved values that extend beyond the boundaries of the specified range. The objective is to achieve a Gaussian distribution of retrievals around the validation "truth" value at the boundary of the specified range in order to quantify the bias and scatter statistics occurring at that boundary. An algorithm that simply provides fill values or performs range clipping on retrievals just outside of the boundary would not provide the necessary distribution of retrieved values at the end of the range, not allowing the proper validation of those values. The retrieved values falling outside of the specified range, although necessary for validating the boundary values and are used in calculation to determine APU, would not be subject to the associated performance requirements outside of the specified range. Note that this requirement is not limited to the EDR Measurement Range attribute but for any SDR, TDR, or EDR performance attribute for which a range of performance is specified.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

3.1 States and Modes

3.1.1 Normal Mode Performance

SRS.01.01_149 Values within a [data product] that can be retrieved and processed by the JPSS Ground System Algorithm shall be produced and delivered under required environmental and sensor viewing conditions.

Rationale: Raw and sensor data available from the system should be delivered regardless of whether or not EDR Degradation and Exclusion Conditions apply. This excludes fill values being used under the specified exclusion or fill conditions.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.01_150 The JPSS Ground System [data product] algorithm shall generate EDRs whose output range of retrieved values encompasses the natural physical range of the environmental parameter being observed.

Rationale: The specified Measurement Range for each EDR simply represents the range over which Measurement Accuracy, Precision, and Uncertainty requirements apply. In most cases the natural physical range that can be observed by the system, and that is desired by the user, is larger than the specified Measurement Range. It is important for EDR algorithms to produce retrievals outside of the specified Measurement Range in order to support the proper setting of tunable quality flags and for algorithm error estimation. Examples are LST, SST, AOT, APSP, COT products. Rather than simply flagging retrievals outside of the specified Measurement Range as "bad," EDR validation may show that performance margin in the system allows retrievals to be flagged as "good" with operational and scientific utility even though those

retrievals fall outside of the specified Measurement Range. The EDR validation campaign will have the capability to recommend the range thresholds for triggering EDR quality flags provided that the retrieved values produced by those EDRs are not artificially constrained by the specified Measurement Range.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.01_156 The JPSS Ground System [data product] algorithm shall produce data records with effective horizontal cell size as a rectangular area for visible and infrared sensors.

Rationale: The data product needs to have a defined horizontal cell size that algorithm needs to implement and deliver. The JPSS Level 1 Supplement defines the Horizontal Cell Size (Horizontal Spatial Resolution) of different EDR types.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.01_157 The JPSS Ground System [data product] algorithm shall produce data records with effective horizontal cell size as a circle area for microwave sensors.

Rationale: The data product needs to have a defined horizontal cell size that algorithm need to implement and deliver. The JPSS Level 1 Supplement defines the Horizontal Cell Size (Horizontal Spatial Resolution) of different EDR types.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

3.1.2 Graceful Degradation Mode Performance

Not applicable.

3.2 Algorithm Functional Requirements

3.2.1 Product Production Requirements

SRS.01.01_160 The JPSS Ground System [data product] algorithm shall produce data records from partial RDR data sets that exceed a configurable threshold of completeness.

Rationale: The JPSS Ground System will incorporate 99.9% of the RDRs meeting processing thresholds in the production of SDRs, TDRs, and EDRs at the Data Processing Node measured over a monthly basis. Partial RDRs under the configurable threshold are not used in the production of SDRs. CGS is responsible for making it a configurable threshold.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.01_260 The JPSS Ground System [data product] algorithm shall produce data records from partial RDR data sets that exceed a configurable threshold of completeness.

Rationale: The JPSS Ground System will incorporate 99.9% of the RDRs meeting processing thresholds in the production of SDRs, TDRs, and EDRs at the Data Processing Node measured over a monthly basis. Partial RDRs under the configurable threshold are not used in the

production of SDRs. Algorithm provider is responsible for ensuring that calibration code can handle missing data in cases when partial RDR data sets are used to produce data products.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.01_210 The JPSS Ground System [data product] algorithm shall be able to generate JPSS data products from repaired RDRs.

Rationale: To ensure the integrity of data products it will be necessary to attempt to recover missing or damaged data. When a repaired science RDR has been generated, the product generation algorithm must be capable of repeating the original downstream processing of core granules using the repaired RDR.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.01_261 The JPSS Ground System [data product] algorithm shall be able to generate JPSS data products from repaired RDRs.

Rationale: To ensure the integrity of data products it will be necessary to attempt to recover missing or damaged data. When a repaired science RDR has been generated, the product generation algorithm must be capable of repeating the original downstream processing of the core granule using the repaired RDR. Algorithm provider is responsible for ensuring that delivered code can produce data products from repaired science RDRs.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

3.2.2 Algorithm Science Requirements

Not applicable.

3.2.3 Algorithm Exception Handling

Not applicable.

3.3 External Interfaces

3.3.1 Inputs

Not applicable.

3.3.2 Outputs

Not applicable.

3.4 Science Standards

SRS.01.01_155 The JPSS Ground System [data product] algorithm shall produce data records with geolocation latitude and longitude output in degrees.

Rationale: A Common and consistent unit must be used in generating and outputting the geolocation parameters which are used to generate geolocation files associated with products.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.01_198 The JPSS Ground System [data product] algorithm shall use World Geodetic System (WGS) 84 as the geodetic system in accordance with the Department of Defense World Geodetic System 1984 Technical Report, National Imagery and Mapping Agency Technical Report 8350.2 (NIMA TR-8350.2).

Rationale: WGS-84 has been designated the geodetic reference system for the JPSS Ground System. The system needs a defined geodetic system as a means to locate the science observations on the earth. WGS 84 is also used by the Global Positioning System (GPS).

Mission Effectivity: S-NPP, GCOM-W1, JPSS-1, JPSS-2

SRS.01.01_199 The JPSS Ground System [data product] algorithm shall use algorithm processing that can be traced to Universal Time Coordinated (UTC), including the leap second convention.

Rationale: UTC is the time format distributed and utilized worldwide and can be readily obtained from the Global Positioning Satellites (GPS). Science data product algorithms must comply with US Naval Observatory (USNO) definition of Coordinated Universal Time (UTC) (USNO) as defined in ITU-R TF.460-6, Standard-frequency and time-signal emissions including the leap second convention.

Mission Effectivity: S-NPP, GCOM-W1, JPSS-1, JPSS-2

SRS.01.01_200 The JPSS Ground System data product algorithm shall use on-orbit coordinate system that uses a right-hand, orthogonal, body-fixed XYZ coordinate system as follows: the +Z axis is downward towards nadir, the Y-axis is along the orbit normal plane (+Y is opposite the orbital angular momentum), and the X-axis is along the spacecraft velocity vector (+X toward the direction of spacecraft travel).

Rationale: A common reference frame is necessary to ensure compatibility with heritage coordinate systems (e.g. S-NPP) for Earth-observing spacecraft.

Mission Effectivity: S-NPP, GCOM-W1, JPSS-1, JPSS-2

SRS.01.01_201 The JPSS Ground System [data product] algorithm shall use the Earth-centered J2000 inertial coordinate system for attitude knowledge and orbit reference systems.

Rationale: Reference frame knowledge is required for accurate data location and processing.

Mission Effectivity: S-NPP, GCOM-W1, JPSS-1, JPSS-2

SRS.01.01_202 The JPSS Ground System [data product] algorithm shall use the metric system of measurement as required by NPD 7120.4D, NASA Engineering and Program/Project Management Policy.

Rationale: NASA policy mandates the use of the metric system. Waivers may be required for heritage systems or certain algorithm. Individual SRS will specify any deviation from this. The SI units are the modern form of the metric system. Some data products such as ozone total column is measured in Dobson (milli-atm-cm) that is not covered by metric system.

Mission Effectivity: S-NPP, GCOM-W1, JPSS-1, JPSS-2

3.5 Metadata Output

SRS.01.01_182 The JPSS Ground System [data product] algorithm shall produce data records that possess a metadata flag which is set when a spacecraft maneuver is in progress.

Rationale: Specification in the GSRD Vol. 1 requires the system to handle maneuvers. Metadata flag must be generated to indicate a maneuver is in progress. Algorithm provider is responsible for modifying and updating maneuver metadata flags and fields when such changes are necessary, incorporating them in algorithms being delivered, and adjudicating such changes through configuration management process. CGS is responsible for implementing maneuver metadata flags configuration changes in operational environment.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.01_184 The JPSS Ground System [data product] algorithm shall use the Federal Geographic Data Committee (FGDC), the Content Standard for Digital Geospatial Metadata (CSDGM), and the FGDC Extensions for Remote Sensing Metadata as a guide to construct the metadata elements with the general metadata elements defined in Table 3.3.4-1 in GSRD Vol.2.

Rationale: For more information, see http://www.fgdc.gov. The Content Standard for Digital Geospatial Metadata (CSDGM), Version 2 (FGDC-STD-001-1998) is the current US Federal Metadata standard.

Mission Effectivity: S-NPP, GCOM-W1, JPSS-1, JPSS-2

SRS.01.01_258 The [data product] metadata elements shall be formatted in accordance with Sections 4 and 5 of the JPSS Algorithm Specification for the Common Algorithms, Vol II Data Dictionary, 474-00448-02-01

Rationale: This requirement defines the format and allowable values for the data product metadata.

Mission Effectivity: S-NPP, GCOM-W1, JPSS-1, JPSS-2

3.6 Quality Flag Content Requirements

Not applicable.

3.7 Data Quality Notification Requirements

SRS.01.01_173 The JPSS Ground System [data product] software shall generate data quality notification in accordance with the DQTT Quality Flag Mapping section of the JPSS Algorithm Specification, Vol II Data Dictionary for each SRS.

Rationale: The data quality notification contents can be used to for tracking and resolving data quality problem.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

SRS.01.01_259 The [data product] data quality notification shall be formatted in accordance with Section 6 of the JPSS Algorithm Specification for the Common Algorithms, Vol II Data Dictionary, 474-00448-02-01.

Rationale: This requirement defines the format for data quality notification.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

3.8 Adaptation

Not applicable.

3.9 Provenance Requirements

The JPSS science data processing algorithms and software have their origins in S-NPP mission. Any new algorithm or major upgraded algorithm will follow the Algorithm ERB and Ground Project ERB processes by submission of algorithm deviation reports (DRs).

3.10 Computer Software Requirements

Not applicable.

3.11 Software Quality Characteristics

Not applicable.

3.12 Design and Implementation Constraints

Not applicable.

3.13 Personnel Related Requirements

Personnel related aspects such as operator and personnel trainings for algorithm and product generation will follow requirements specified in GSRD Volume 1 Sections 3.1.8 and 3.1.9.

3.14 Training Requirements

Training aspects of the JPSS Ground System including algorithm and product generation will follow requirements specified in GSRD Volume 1 Sections 3.1.8, 3.1.9 and 3.8.3.

3.15 Logistics Related requirements

Logistics involving algorithm and product generation will follow requirements specified in GSRD Volume 1 Sections 3.1.8, 3.1.10, 3.8.2, and 3.8.3.

3.16 Other Requirements

The JPSS science data processing algorithms and software will play essential roles in producing, collecting, monitoring and updating calibration data, sensor parameter trending data, processing coefficient tables and look-up tables, and data product algorithms and their documents. This effort as described in Section 3.4 of the JPSS L1RD Supplement and Section 3.2.6 of the GSRD Volume 2 will be accomplished by on-orbit calibration and validation and the subsequent long term monitoring activities throughout the mission life.

3.17 Packaging Requirements

Packaging aspects of algorithm change packages for product generation will follow requirements specified in GSRD Volume 1 in Sections 3.8.2 and 3.9.2.

SRS.01.01_146 The JPSS Ground System [data product] algorithm package shall have the ability to track changes to the algorithm performance over the mission life time.

Rationale: In order to consistently meet quality and precision requirements the JPSS Ground System must verify that all algorithm updates meet the specified quality and accuracy requirements. Algorithm must be able to accept new updated LUT, PCT, code changes that are needed to maintain the product performance during the life of the mission.

Mission Effectivity: S-NPP, JPSS-1, JPSS-2

3.18 Precedence and Criticality

Priority of algorithm execution for production generation in mission critical events, contingency events, or critical operations will follow requirements specified in GSRD

Appendix A. Requirements Attributes

The Requirements Attributes Table lists each requirement with CM-controlled attributes including requirement type, mission effectivity, requirement allocation(s), block start and end, method(s) for verifying each requirement, etc.

Req ID	SRS 01 Common Algorithm Specification	Level 3 Type	Product Type	Mission Effectivity	Allocated To	Block Start	Block End	Block 2.0.0 VM	Block 2.1.0 VM	Block 2.2.0 VM
SRS.01.01_144	The JPSS Ground System [data product] algorithms shall produce retrieved values for SDRs, TDRs, and EDRs outside of the boundaries of the specified range of any performance attribute to the extent necessary for validating retrieved values occurring at the boundaries of the specified range.	P	EDR SDR TDR	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Analysis	NA	NA
SRS.01.01_149	Values within a [data product] that can be retrieved and processed by the JPSS Ground System Algorithm shall be produced and delivered under required environmental and sensor viewing conditions.	P	SDR TDR RDR	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Analysis	NA	NA
SRS.01.01_150	The JPSS Ground System [data product] algorithm shall generate EDRs whose output range of retrieved values encompasses the natural physical range of the environmental parameter being observed.	P	EDR	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Analysis	NA	NA
SRS.01.01_156	The JPSS Ground System [data product] algorithm shall produce data records with effective horizontal cell size as a rectangular area for visible and infrared sensors.	Ap	EDR	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.01_157	The JPSS Ground System [data product] algorithm shall produce data records with effective horizontal cell size as a circle area for microwave sensors.	Ap	EDR	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.01_160	The JPSS Ground System [data product] algorithm shall produce data records	Ap	EDR SDR	S-NPP JPSS-1	CGS	2.0.0	3.0.0	Inspection	NA	NA

Req ID	SRS 01 Common Algorithm Specification	Level 3 Type	Product Type	Mission Effectivity	Allocated To	Block Start	Block End	Block 2.0.0 VM	Block 2.1.0 VM	Block 2.2.0 VM
	from partial RDR data sets that exceed a configurable threshold of completeness.		IP RDR GEO	JPSS-2						
SRS.01.01_260	The JPSS Ground System [data product] algorithm shall produce data records from partial RDR data sets that exceed a configurable threshold of completeness.	Ap	EDR SDR IP TDR GEO	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.01_210	The JPSS Ground System [data product] algorithm shall be able to generate JPSS data products from repaired RDRs.	Ap	SDR IP TDR GEO	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.01_261	The JPSS Ground System [data product] algorithm shall be able to generate JPSS data products from repaired RDRs.	Ap	SDR IP TDR GEO	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.01_155	The JPSS Ground System [data product] algorithm shall produce data records with geolocation latitude and longitude output in degrees.	F	GEO	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.01_198	The JPSS Ground System [data product] algorithm shall use World Geodetic System (WGS) 84 as the geodetic system in accordance with the Department of Defense World Geodetic System 1984 Technical Report, National Imagery and Mapping Agency Technical Report 8350.2 (NIMA TR-8350.2).	Fg	GEO	S-NPP GCOM-W1 JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.01_199	The JPSS Ground System [data product] algorithm shall use algorithm processing that can be traced to Universal Time Coordinated (UTC), including the leap second convention.	Ap F	EDR SDR TDR RDR	S-NPP GCOM-W1 JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA	NA

Req ID	SRS 01 Common Algorithm Specification	Level 3 Type	Product Type	Mission Effectivity	Allocated To	Block Start	Block End	Block 2.0.0 VM	Block 2.1.0 VM	Block 2.2.0 VM
SRS.01.01_200	The JPSS Ground System data product algorithm shall use on-orbit coordinate system that uses a right-hand, orthogonal, body-fixed XYZ coordinate system as follows: the +Z axis is downward towards nadir, the Y-axis is along the orbit normal plane (+Y is opposite the orbital angular momentum), and the X-axis is along the spacecraft velocity vector (+X toward the direction of spacecraft travel).	Ap F	EDR SDR TDR RDR GEO	S-NPP GCOM-W1 JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.01_201	The JPSS Ground System [data product] algorithm shall use the Earth-centered J2000 inertial coordinate system for attitude knowledge and orbit reference systems.	Ap F	EDR SDR TDR RDR GEO	S-NPP GCOM-W1 JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.01_202	The JPSS Ground System [data product] algorithm shall use the metric system of measurement as required by NPD 7120.4D, NASA Engineering and Program/Project Management Policy.	Ap F	EDR SDR TDR RDR GEO	S-NPP GCOM-W1 JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.01_182	The JPSS Ground System [data product] algorithm shall produce data records that possess a metadata flag which is set when a spacecraft maneuver is in progress.	F	EDR SDR IP TDR GEO	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.01_184	The JPSS Ground System [data product] algorithm shall use the Federal Geographic Data Committee (FGDC), the Content Standard for Digital Geospatial Metadata (CSDGM), and the FGDC Extensions for Remote Sensing Metadata as a guide to construct the metadata elements with the general	F	EDR SDR IP TDR RDR GEO	S-NPP GCOM-W1 JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA

Req ID	SRS 01 Common Algorithm Specification	Level 3 Type	Product Type	Mission Effectivity	Allocated To	Block Start	Block End	Block 2.0.0 VM	Block 2.1.0 VM	Block 2.2.0 VM
	metadata elements defined in Table 3.3.4-1 in GSRD Vol.2.									
SRS.01.01_258	The [data product] metadata elements shall be formatted in accordance with Sections 4 and 5 of the JPSS Algorithm Specification for the Common Algorithms, Vol II Data Dictionary, 474-00448-02-01	F	EDR SDR IP TDR RDR GEO	S-NPP GCOM-W1 JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.01_173	The JPSS Ground System [data product] software shall generate data quality notification in accordance with the DQTT Quality Flag Mapping section of the JPSS Algorithm Specification, Vol II Data Dictionary for each SRS.	N	EDR SDR IP TDR RDR	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.01_259	The [data product] data quality notification shall be formatted in accordance with Section 6 of the JPSS Algorithm Specification for the Common Algorithms, Vol II Data Dictionary, 474-00448-02-01.	Fn	EDR SDR IP TDR RDR AUX	S-NPP JPSS-1 JPSS-2	CGS	2.0.0	3.0.0	Inspection	NA	NA
SRS.01.01_146	The JPSS Ground System [data product] algorithm package shall have the ability to track changes to the algorithm performance over the mission life time.	Ap	EDR SDR TDR	S-NPP JPSS-1 JPSS-2	algorithm provider	2.0.0	3.0.0	Inspection	NA	NA